

REMARKS

Reconsideration and allowance of the present patent application based on the foregoing amendments and following remarks are respectfully requested.

By this Amendment, claim 1 is amended and claims 42 and 43 are newly added. Claims 2, 6-7, 16, 18, 32, and 37-41 have been withdrawn from consideration as being directed to a non-elected invention. Support for the amendments to claim 1 and for new claims 42 and 43 may be found, for example, on pages 9 and 16 of the specification. No new matter has been added. After entry of this Amendment, claims 1, 3-5, 8-15, 17, 19-31, 33-36, and 42-43 will remain pending in the patent application.

Claims 1, 3-5, 8-15, 17, 19-31 and 33-36 were rejected under 35 U.S.C. §112, second paragraph. In response, claim 1 has been amended in the manner suggested by the Examiner. Accordingly, reconsideration and withdrawal of the rejection of claims 1, 3-5, 8-15, 17, 19-31 and 33-36 under 35 U.S.C. §112, second paragraph, are respectfully requested.

Claims 1, 3-4, 8-10, 14-15, 19, 21, 26, 28-29, 31, and 34-36 were rejected under 35 U.S.C. §102(b) based on Anderson *et al.* (U.S. Pat. No. 5,922,591) (hereinafter "Anderson"). The rejection is respectfully traversed.

Claim 1 is patentable over Anderson at least because this claim recites a device for analyzing a plurality of sample components comprising, *inter alia*, a drawn substrate having a length and at least two drawn channels formed therethrough, said drawn substrate and at least two drawn channels being drawn from a preform body having corresponding channels formed therethrough. Anderson does not teach or suggest a device including this feature. Therefore, Anderson does not teach or suggest each and every feature recited by claim 1 and, as a result, cannot anticipate this claim.

As conceded by the Examiner on page 4 of the Office Action, Anderson discloses a device including fluid passages that are manufactured onto the surface of a planar member (identified as the "substrate" in the Official Action). (See col. 19, lines 31-33). Anderson also discloses that fluid passages are manufactured onto the surface of another plane member (*i.e.*, substrate) and that the two plane members (*i.e.*, substrates) are bonded together. (See col. 19, lines 37-45). Anderson is, however, silent about drawn channels that are formed through a drawn substrate. Accordingly, Anderson cannot anticipate claim 1.

Claims 3-4, 8-10, 14-15, 19, 21, 26, 28-29, 31, and 34-36 are patentable over Anderson by virtue of their dependency from claim 1 and for the additional features recited

therein. In that regard, Applicants note that Anderson is silent, for example, about the features of claims 8 and 21.

Accordingly, reconsideration and withdrawal of the rejection of claims 1, 3-4, 8-10, 14-15, 19, 21, 26, 28-29, 31, and 34-36 under 35 U.S.C. §102(b) based on Anderson are respectfully requested.

Claims 1, 3-5, 8-10, 14-15, 17, 20-31, and 33-36 were rejected under 35 U.S.C. §102(b) based on Beattie (U.S. Pat. No. 5,843,767). The rejection is respectfully traversed.

Claim 1 recites a device comprising, *inter alia*, a drawn substrate having a length and at least two drawn channels formed therethrough, said drawn substrate and at least two drawn channels being drawn from a preform body having corresponding channels formed therethrough, wherein a layer of material defining said at least two channels comprises a material which remains substantially unchanged during drawing said preform body.

In connection with the rejection, the Examiner indicated that claim 1 was amended to a product-by-process claim and, as a result, determination of patentability is based on the product itself. (See paragraph 15 in the Official Action). In response, Applicants point out that the structure implied by the process steps should be considered when assessing the patentability of product-by-process claims over the prior art, **especially where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product.** (See MPEP 2113). In the present case and, as clearly explained in Applicants' Amendment dated February 10, 2004, the product disclosed by Beattie fundamentally differs from the product recited by claim 1 because the layer of material defining the array of drawn channels, in Beattie, is changed during drawing the initial glass. Therefore, distinctive structural characteristics exist between the drawn substrate recited in claim 1 and the array of drawn channels disclosed by Beattie.

As explained in the February 10th Amendment, Beattie discloses nanochannel glass arrays that are fabricated by arranging dissimilar glasses in a predetermined configuration. (See col. 9, lines 60-61). Beattie also discloses that construction of the array starts with an assembly (a rod and a tube) having no channel formed therein and an array of portions of this assembly is created after cutting, re-stacking, re-fusing and re-drawing this assembly several times. (See col. 9, lines 62-67 and col. 9, lines 67, col. 10, lines 1-4) Then, the channels are formed in this assembly only after etching away part of this assembly (in this particular case, the etchable rod). (See col. 10, lines 14-15). This process for fabricating the array is disclosed in the article by Tonucci *et al.* (C.E. 1992 Science 258:783-785), which is cited by

Beattie in col. 9, lines 52-54. A copy of the Tonucci article (hereinafter "the Article") is enclosed herewith.

As clearly explained on page 784 of the Article and in the February 10th Amendment, the device recited in claim 1 differs from the microarray disclosed in Beattie because the physical and chemical properties of the resulting array of channels in Beattie are not the same as the physical and chemical properties of the drawn substrate of claim 1. As pointed out on page 4, col. 1, of the Article, the draw process described in Beattie will cause the etchable glass rod and the inert glass tube to inter-diffuse at the interface of the rod and the tube. Therefore, contrary to the drawn substrate of claim 1, the chemical composition of the resulting arrays of Beattie **changes** during the fabrication process and the layer of material defining the resulting channels does **not** have the same chemical composition as a remaining portion of the array.

Furthermore, in order to obtain the device of claim 1, and in particular the drawn channels formed by the draw process, the selectivity of the acid solution towards this assembly (*i.e.*, the etch rate of the rod divided by the etch rate of the tube) would have to be infinite, which is impossible. In that regard, the Article only mentions an etch selectivity in the order of several thousand. (See page 784, col. 3). Because the etch selectivity is not infinite, the etch solution will undeniably etch the layer of material defining the channels, producing channels with a different inner roughness. As a result, the structure of the resulting channels will **change** if an etch solution is used.

Therefore, since in Beattie the glass rod and the glass tube will inter-diffuse and the acid solution will etch part of the glass tube, the array of channels disclosed by Beattie and the drawn substrate recited by claim 1 cannot have the same structural, physical and chemical characteristics. For at least these reasons, claim 1 is allowable.

Claims 3-5, 8-10, 14-15, 17, 20-31, and 33-36 are patentable over Beattie by virtue of their dependency from claim 1 and for the additional features therein.

Accordingly, reconsideration and withdrawal of the rejection of claims 1, 3-5, 8-10, 14-15, 17, 20-31, and 33-36 under 35 U.S.C. §102(b) based on Beattie are respectfully requested.

Claims 1, 5 and 11-13 were rejected under 35 U.S.C. §102(b) based on Jansen (U.S. Pat. No. 5,173,097). The rejection is respectfully traversed.

Claim 1 is patentable over Jansen at least because this claim recites a device wherein, *inter alia*, the at least two drawn channels are configured to allow a fluid to flow therethrough. Jansen does not disclose a device including this feature. Therefore, Jansen

does not disclose each and every feature recited by claim 1 and, as a result, cannot anticipate claim 1.

As conceded by the Examiner on page 17 of the Official Action, Jansen discloses a substrate having a plurality of fibers (identified as the “channels” in the Official Action). Jansen does not teach or suggest, in any way, channels that are configured to allow a fluid to flow therethrough. In Jansen the fibers are configured to direct light, not a fluid. Therefore, claim 1 is allowable over Jansen.

Claims 5 and 11-13 are patentable over Jansen by virtue of their dependency from claim 1 and for the additional features recited therein.

Accordingly, reconsideration and withdrawal of the rejection of claims 1, 5 and 11-13 under 35 U.S.C. §102(b) based on Jansen are respectfully requested.

Claims 1, 3-4, 8-10, 14-15, 19, 21, 26, 28-29, 31, and 34-36 were rejected under 35 U.S.C. §102(b)/103(a) based on Anderson. The rejection is respectfully traversed.

As mentioned previously, Anderson does not teach or suggest each and every limitation recited by claim 1 because Anderson does not disclose, for example, a device comprising, *inter alia*, a drawn substrate having a length and at least two drawn channels formed **therethrough**, said drawn substrate and at least two drawn channels being drawn from a preform body having corresponding channels formed **therethrough**. There is no motivation or suggestion in Anderson to provide such a feature. As mentioned previously, Anderson only discloses channels that are formed on the surface of the substrate, not through the substrate. Therefore, claim 1 is allowable.

Claims 3-4, 8-10, 14-15, 19, 21, 26, 28-29, 31, and 34-36 are patentable over Anderson by virtue of their dependency from claim 1 and for the additional features recited therein. In that regard, Applicants note that Anderson is silent, for example, about the features of claims 8 and 21.

Accordingly, reconsideration and withdrawal of the rejection of claims 1, 3-4, 8-10, 14-15, 19, 21, 26, 28-29, 31, and 34-36 under 35 U.S.C. §102(b)/103(a) based on Anderson are respectfully requested.

Claims 1, 3-5, 8-10, 14-15, 17, 20-31, and 33-36 were rejected under 35 U.S.C. 102(b)/103(a) based on Beattie. The rejection is respectfully traversed.

As mentioned previously, the device recited by claim 1 is different from the one disclosed by Beattie at least because claim 1 recites a device including, *inter alia*, a drawn substrate having a length and at least two drawn channels formed therethrough, said drawn substrate and at least two drawn channels being drawn from a preform body having

corresponding channels formed therethrough, wherein a layer of material defining said at least two channels comprises a material which remains substantially unchanged during drawing said preform body. As also mentioned previously, because the arrays of Beattie and the drawn substrate of claim 1 are manufactured by different processes, the resulting devices are different. Therefore, claim 1 is allowable.

Claims 3-5, 8-10, 14-15, 17, 20-31, and 33-36 are patentable over Beattie by virtue of their dependency from claim 1 and for the additional features therein.

Accordingly, reconsideration and withdrawal of the rejection of claims 1, 3-5, 8-10, 14-15, 17, 20-31, and 33-36 under 35 U.S.C. §102(b)/103(a) based on Beattie are respectfully requested.

Claims 1, 5 and 11-13 were rejected under 35 U.S.C. §102(b)/103(a) based on Jansen (U.S. Pat. No. 5,173,097). The rejection is respectfully traversed.

As mentioned previously, Jansen does not teach or suggest each and every limitation recited by claim 1 because Jansen does not disclose, for example, a device wherein, *inter alia*, the at least two drawn channels are configured to allow a fluid to flow therethrough. There is no motivation or suggestion in Anderson to provide such a feature. As conceded by the Examiner on page 17 of the Official Action, Jansen discloses a substrate having a plurality of fibers (identified as the "channels" in the Official Action). Jansen does not teach or suggest, in any way, channels that are configured to allow a fluid to flow therethrough. In Jansen the fibers are configured to direct light, not a fluid. Therefore, claim 1 is allowable over Jansen.

Claims 5 and 11-13 are patentable over Jansen by virtue of their dependency from claim 1 and for the additional features recited therein.

Accordingly, reconsideration and withdrawal of the rejection of claims 1, 5 and 11-13 under 35 U.S.C. §102(b)/103(a) based on Jansen are respectfully requested.

New claims 42-43 are added. Claims 42-43 are patentable over Anderson, Beattie, Jansen or a combination thereof by virtue of their dependency from claim 1 and for the additional features recited therein.

Applicants have addressed all the Examiner's rejections and respectfully submit that the application is in condition for allowance. A notice to that effect is earnestly solicited.

CLARKIN ET AL. -- 09/771,569
Client/Matter: 081295-0277116

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

PILLSBURY WINTHROP LLP

By: 

ROBERT C. PEREZ

Reg. No. 39328

Tel. No. (703) 905-2159

Fax No. (703) 905-2500

RCP/CFL
P.O. Box 10500
McLean, VA 22102
(703) 905-2000